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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,060	10/31/2001	Laurance N. Hazlehurst	38190/207407	6687

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EXAMINER

CADUGAN, ERICA E

ART UNIT PAPER NUMBER

3722

DATE MAILED: 08/21/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,060

Applicant(s)

HAZLEHURST ET AL.

Examiner

Erica E Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 9,12-16,21,23-25,37-46,48-54 and 58-64 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 55-57 is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-11, 17-20, 22, 26-29, 35-36, 47 is/are rejected.
- 7) ☒ Claim(s) 30-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 10.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 7. 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 9, 12-16, 21, 23-25, 37-46, 48-54, and 58-64 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species/invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 4. However, Applicant did not provide grounds for the traversal.

The requirement is still deemed proper and is therefore made FINAL.

It is further noted that in the "Supplemental Response to Restriction Requirement" submitted May 19, 2003, Applicant submitted that claims 1, 2-6, 17, and 20 are generic claims. However, it is noted that the invention as set forth in claims 4-6 and 17 does not appear to read on the embodiment of Figure 20, for example, and thus claims 4-6 and 17 are not considered to be generic claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-8, 19, and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, line 3, language such as --respective-- should be inserted prior to "index device" for clarity since plural index devices have been previously set forth. A similar situation

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exists in claim 4, last line, with “the sensor”; with “said index device” in claim 7, last line; with “said index device” in claim 19, line 3; and with “said index device” in claim 47, line 5.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 10-11, 17-18, 20, 22, 26, 28-29, and 36, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,158,666 (Banks et al.) in view of U.S. Pat. No. 5,477,596 (Scholsstein et al.).

Banks teaches a mini-riveter system 100 for processing workpiece panels 110 (Figure 5, for example). The system includes a plurality of index pin devices 120 that removably attach to the workpiece 110 within longitudinally-spaced receptacles 156A, B, and C (see Figure 5, for example, also col. 6, line 64 through col. 7, line 25 and col. 8, lines 52-65). Additionally note that Banks teaches longitudinally-extending rails 102 (see Figure 5 and col. 7, lines 28-34, for example) that are releasably engaged with the index pins 120 via rail ties 134A, B, etc. (see Figure 5 and col. 7, lines 28-34). Regarding the “machine module”, note that outside end effector assembly 104 (Figure 8A, for example) includes a drill/countersink module 252 and a rivet module 254 (Figures 8A-8E), and is movable along rails 102 (col. 10, lines 24-26, for example) via “cooperating drive elements” such as friction drive wheel that “cooperates” with the surface of rail 130 (col. 10, lines 23-41, for example).

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Regarding claim 11, note that the drive system (col. 10, lines 23-41) for moving the outside end effector 104 along the rails 102 is separate from or “independent” of the rails 102

Regarding claim 17, note that the ties 134A, B, etc. can be considered the claimed “index arms”.

Regarding claim 18, it is noted that both ties 134A and B are “fixed” to the rails 102 (col. 7, lines 28-46, for example), and it is also noted that both of them are considered to be “adjustable” as claimed in that they are “able” to be so adjusted by removing the fasteners that fix them to the rails and reaffixing them in a new position along the rails (col. 7, lines 28-46, for example, also Figure 5).

Regarding claim 20, Banks teaches a vacuum system for clamping or affixing the rails 102 to the workpieces 110 (col. 7, line 49 through col. 9, line 10, for example).

Regarding claim 22, note that each of the contact platforms 136A and 136B includes vacuum generators (col. 7, lines 49-51, for example, also Figure 5), and that these contact platforms and vacuum generators can be considered to be on “opposite” sides of the workpiece, i.e., the upper and lower (as viewed in Figure 5) sides of the workpiece.

Regarding claim 29, note that pressure foot 230, mounted on end effector 104 applies clamp-up pressure to the lap joint being fastened (col. 10, line 42 through col. 11, line 30, also, Figures 8C to 8E and col. 6, lines 1-3 and 23-35).

Regarding claim 36, Banks teaches plural mini-riveting systems 100 (col. 19, lines 22-29)

Banks does not teach that the rails 102 include any sort of “position-indicating features” that are detectable by the “machine module” 104 to determine the position of the “machine module” relative to the workpiece.

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Regarding the “position-indicating features” detectable by the “machine module”, Schlosstein teaches a movable truck 44 on which modules for performing operations such as drilling are mounted (col. 4, line 45 through col. 5, line 3, for example) for movement along a box beam 31 (col. 4, lines 45-62, for example). In order for the position of the truck to be known, a “positional scale 100 is mounted on the back side of the box beam 31 and a reader 10 is mounted on the underside of the truck 44 a position horizontally juxtaposed to the positional scale 100” (col. 5, lines 50-55, for example). This enables the control system for the machine to position the carriage 40 (of the truck) with “great accuracy lengthwise along the path of the stringer so that the holes are drilled at the correct position” (col. 5, line 62 through col. 6, line 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the positional scale and reader taught by Schlosstein et al. to the device taught by Banks et al. for the purpose of enabling the control system for Banks’ device to position the mini-riveting system with “great accuracy lengthwise along the path of the stringer so that the holes are drilled at the correct position” as taught by Schlosstein et al. (col. 5, line 62 through col. 6, line 2).

Regarding the plural systems of claim 36, in the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided as many of the systems taught by Banks (or Banks in view of Schlosstein) as were desired or expedient to an end user, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

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6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banks et al. in view of Schlosstein et al. as applied to claims 1 and 26 above, and further in view of U.S. Pat. No. 3,722,711 (Seidel).

Banks et al. in view of Schlosstein et al. teaches all aspects of the claimed invention as described in the above rejection based thereon, and additionally, it is noted that Banks teaches that the quick and easy replacement of drills is desirable (col. 6, lines 36-42), but does not teach any sort of automatic drill changer for the drilling device.

Seidel teaches an automatic tool changing device that includes a tool carrier 24 containing a plurality of tools 25 and mounted on a spindle carrier 21 (Figure 1), wherein tool interchanger 29 exchanges tools between the spindle 22 on the spindle carrier 21 and the tool carrier 24 (Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the automatic tool changing device mounted on a tool carrier as taught by Seidel to the tool carrying end effector 104 taught by Banks et al. for the purpose of automating the tool exchange process of Banks' device, thereby desirably increasing the speed, efficiency, ease, and accuracy of the tool exchange process.

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banks et al. in view of Schlosstein et al. as applied to claims 1 and 26 above, and further in view of U.S. Pat. No. 5,718,545 (Husted).

Banks et al. in view of Schlosstein et al. teaches all aspects of the claimed invention as described in the above rejection based thereon, but does not teach that the drill is "rotatable about

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at least one rotation axis for varying a drilling direction along which a hole is drilled in a workpiece”.

Husted teaches a spindle block 40 (Figures 1-2) that can be used for drilling operations (col. 2, lines 21-28). The spindle block is pivotable about axle 44 (Figure 2) so as to rotate a tool 80 held thereby about the axle 44, thus presenting the tool to the workpiece at a different angular position (Figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the capability of pivoting the drilling tool taught by Banks et al. in view of Schlosstein et al. about an axis in order to vary the presentation of the tool to the workpiece as taught by Husted for the purpose of increasing the capabilities of the device taught by Banks et al. in view of Schlosstein (by enabling said device to drill holes at different angles).

Allowable Subject Matter

8. Claims 4-8 and 19, would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 30-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 47 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

11. Claims 55-57 are allowed.

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12. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 47 and 55, Banks et al. applied above to claim 1 is representative of the closest prior art of record to claims 47 and 55. However, note that the index pins 120 include reflective heads 126 including reflecting squares 128 (col. 7, lines 7-13) that are detected by homing sensor 218 (col. 9, line 61 through col. 10, line 23, and col. 18, lines 26-34, for example). However, it is noted that such reflecting squares are not sensors "in which is stored an identifier unique to said index device" as set forth in claims 47 and 55, and for at least this reason, Banks et al. (and thus the prior art of record) does not anticipate the present invention as set forth in independent claims 47 and 55. Additionally, there is no teaching in the prior art that would motivate one of ordinary skill in the art to so modify the teachings of Banks, and thus, for at least this reason, the prior art of record does not render obvious the present invention as set forth in independent claims 47 and 55.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Faxing of Responses to Office Actions and Contact Information

14. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302 or, for responses after

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final rejection only, to (703) 872-9303. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on Monday through Thursday from 7:30 a.m. to 5:00 p.m., and every other Friday from 7:30 a.m. to 4:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached at (703) 308-2159. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 3700 receptionist whose telephone number is (703) 308-1148.

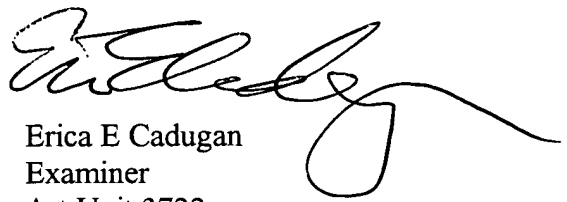
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

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should be directed to the receptionist whose telephone number is (703) 308-1148.

A handwritten signature in black ink, appearing to read 'Erica E Cadugan', with a long, sweeping horizontal line extending to the right.

Erica E Cadugan
Examiner
Art Unit 3722

eec

August 8, 2003